

CLAIMS

We claim:

1. A roller guide device (26) for use in an elevator system, comprising:

5 a base (30);
at least one roller (32) supported by the base such that the roller is rotatable about a roller axis (34) and moveable relative to the base in at least one direction perpendicular to the roller axis; and
a damper (40) that has a selectively variable stiffness and dampens the relative movement of the roller.

- 10 2. The device of claim 1, including a controller (50) that automatically changes the stiffness of the damper (40).

- 15 3. The device of claim 2, including an elevator car motion indicator (54) in communication with the controller (50) and wherein the controller changes the damper stiffness responsive to a detected level of motion.

- 20 4. The device of claim 1, wherein the damper (40) includes a fluid having a variable viscosity.

5. The device of claim 4, wherein the damper (40) fluid comprises a magneto-rheological fluid.

- 25 6. The device of claim 5, including a field generator (52) that generates a field that changes a viscosity of the magneto-rheological fluid.

7. The device of claim 6, including a controller (50) that controls the field generator (52).

8. The device of claim 7, including an indicator (54) that provides an indication of elevator car movement to the controller (50) and wherein the controller controls the damper stiffness based upon the level of vibration.

5 9. The device of claim 1, including a plurality of rollers (32) and a variable stiffness damper (40) associated with each of the rollers and a controller (50) that individually controls the stiffness of each of the dampers.

10. An elevator system, comprising:
 - a car frame (24);
 - at least one roller (32) supported for vertical movement with the frame,
 - 5 rotatable movement relative to the frame and lateral movement relative to the frame;
 - and
 - a selectively variable stiffness damper (40) that dampens the lateral movement of the roller (32) relative to the frame (24).
 - 10 11. The system of claim 10, including a controller (50) that automatically varies the stiffness of the damper (40).
 12. The system of claim 11, including a vibration detector (54) that provides an indication of a level of car frame vibration to the controller (50) and wherein the controller varies the stiffness of the damper (40) based upon the vibration level.
 - 15 13. The system of claim 10, wherein the damper (40) includes a magneto-rheological fluid that has a selectively variable viscosity.

14. A method of controlling lateral movement of an elevator car assembly (20) having at least one roller (32) for riding along a guide rail (28) to facilitate vertical movement of the car assembly, comprising:

5 selectively and automatically varying an ability of the roller (32) to move laterally relative to the car assembly.

15. The method of claim 14, wherein there is a damper (40) associated with the roller (32) to dampen lateral movement of the roller relative to the car assembly and
10 the method includes selectively varying a stiffness of the damper.

16. The method of claim 15, wherein the damper (40) includes a magneto-rheological fluid and the method includes selectively applying a magnetic field to the damper fluid.

15

17. The method of claim 14, wherein there are a plurality of rollers (30) and associated dampers (40) that dampen lateral movement of the rollers and the method includes individually controlling the dampers.